In the claims:

1. (Previously Presented) A collision severity estimation system for an automotive vehicle comprising:

one or more object detection sensors detecting an object and generating at least one object detection signal; and

a controller electrically coupled to said one or more object detection sensors determining motion properties, comprising kinetic energy, of said object relative to the automotive vehicle and generating an object motion signal in response to said at least one object detection signal;

said controller determining depth of said object in response to said at least one object detection signal and generating a collision severity signal indicative of a potential collision between the automotive vehicle and the object in response to said object motion signal and said depth.

2. (Previously Presented) A system as in claim 1 wherein said controller comprises:

an object velocity estimator determining velocity of said object relative to the automotive vehicle in response to said at least one object detection signal and generating a first object velocity signal;

an object visual parameter evaluator generating an object parameter signal in response to said first object detection signal;

an object classification module generating an object classification signal in response to said object parameter signal; and

a motion property estimator generating said object motion signal in response to said first object velocity signal and said object classification signal.

3. (Previously Presented) A system as in claim 2 wherein said controller in generating said object motion signal determines said kinetic energy or momentum of said object.

4. (Original) A system as in claim 1 further comprising:

a collision countermeasure electrically coupled to said controller; and

said controller activating said collision countermeasure in response to said collision severity signal.

5. (Currently Amended) A system as in claim 1 further comprising:

one or more active electro-magnetic wave-ranging devices detecting said object and generating a wave-ranging device object detection signal; and

said controller electrically coupled to said one or more active electro-magnetic wave-ranging devices generating said object motion signal in response to said ~~wave-ranging device~~ at least one object detection signal and said ~~second~~ wave-ranging device object detection signal.

6. (Previously Presented) A system as in claim 5 wherein said controller in generating said collision severity signal determines height and width information of said object in response to said at least one object detection signal and determines said depth and velocity of said object in response to said wave-ranging device object detection signal.

7. (Original) A system as in claim 5 wherein said active electro-magnetic wave-ranging devices are integrally incorporated within at least one of the following: a radar system, a lidar system, a monocular camera, or a stereo camera pair.

8. (Original) A system as in claim 1 wherein at least one of said one or more object detection sensors is a camera.

9. (Original) A system as in claim 1 further comprising:

a velocity sensor electrically coupled to said controller and generating a host vehicle velocity signal; and

said controller generating said collision severity signal in response to said object motion signal and said host vehicle velocity signal.

10. (Currently Amended) A method of determining motion properties of an object from within an automotive vehicle comprising:

detecting the object via at least one camera and generating a first object detection signal;

detecting the object via at least one wave-ranging device and generating a second object detection signal;

determining velocity of the object relative to the automotive vehicle in response to said ~~first~~ second object detection signal and generating a first object velocity signal;

determining a visual parameter of the object in response to said first object detection signal and generating an object parameter signal; and

determining motion properties, comprising kinetic energy, of the object in response to said first object velocity signal and said object parameter signal;

wherein determining motion properties of the object comprises:

classifying the object and generating a classification signal in response to said object parameter signal; and

estimating mass of the object in response to said classification signal.

11. (Currently Amended) A method as in claim 10 further comprising:

~~detecting the object and generating a second object detection signal;~~

determining velocity of the object relative to the automotive vehicle in response to said ~~second~~ first object detection signal and generating a second object velocity signal; and

determining motion properties of the object in response to said second object velocity signal and said object parameter signal.

12. (Original) A method as in claim 10 wherein determining a visual parameter of the object is in response to said first object detection signal and said second object detection signal.

Claim 13 canceled.

14. (Original) A method as in claim 10 wherein said visual parameter is at least one of an object height, an object width, an object depth, and a surface shape or characteristic of said object.

15. (Previously Presented) A method as in claim 10 further comprising:

estimating area of said object and generating an area signal in response to said object parameter signal;

estimating said mass and generating an object mass signal in response to said area signal; and

determining motion properties of said object in response to said object velocity signal and said object mass signal.

16. (Original) A method as in claim 10 further comprising:

estimating volume of said object and generating a volume signal in response to object parameter signal;

estimating mass of said object and generating an object mass signal in response to said volume signal; and

determining motion properties of said object in response to said object velocity signal and said object mass signal.

17. (Previously Presented) A method of performing a collision countermeasure within an automotive vehicle comprising:

determining motion properties of the automotive vehicle and generating a vehicle motion signal;

detecting an object and generating an object detection signal;

determining velocity of said object in response to said object detection signal and generating an object velocity signal;

determining at least one visual parameter comprising object depth of said object and generating an object parameter signal;

determining mass of said object in response to said object parameter signal;

determining potential collision severity of the automotive vehicle and said object in response to said vehicle motion signal, said object velocity signal, said object parameter signal, and said mass and generating a collision severity signal; and

performing a collision countermeasure in response to said collision severity signal.

18. (Original) A method as in claim 17 wherein determining potential collision severity comprises:

classifying said object in response to said object parameter signal and generating a classification signal; and

determining motion properties of said object in response to said classification signal.

19. (Original) A method as in claim 17 wherein determining potential collision severity of the automotive vehicle and said object comprises multiplying the difference in a motion property of the automotive vehicle and a motion property of said object by a class severity rating.

20. (Original) A method as in claim 17 wherein performing a collision countermeasure comprises performing a passive or active countermeasure.

21. (New) A method as in claim 10 wherein determining a visual parameter is performed via only said at least one camera and wherein determining velocity of the object is performed via only said at least one wave-ranging device.